THOUGHTS & IMAGES

ALBEDO

NR. 4
$2.00

ANTHROPOMORPHICS

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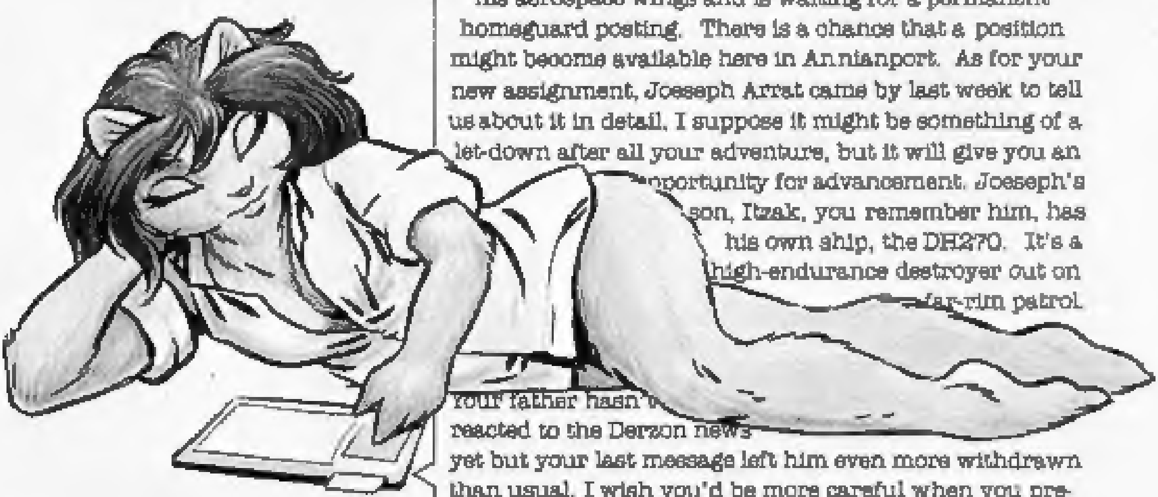
ERMA FELNA EDF

[illegible]

While the invading force, less than 800 strong, seized the population centers on Derzon with virtually no bloodletting or disruption in the lives of the citizenry, the EDF effort to remove them, with more than 8000 troops supported by a vast armada, wrought widespread devastation. Most of Andis, the capital, remains in ruins and outlying power, manufacturing and agricultural activities have been annihilated by nuclear-equivalent bombardment from space. All this demonstrates the intractable EDF policy of re-securing ConFed-Central authority over rim territory at any cost. Any cost.

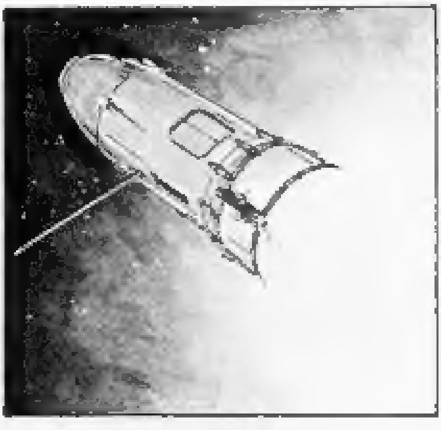
While the physical damage can be tallied in resource/labor credits and graves count the cost in lives, how can the impact on the survivors be measured? Beyond trauma counseling, the citizens of Derzon are left with their confidence in ConFedCentral and the EDF shattered. That confidence is now also in question across ConFed space. If there is a true Republican threat, though they refuse to acknowledge the incident at all, how is the EDF going to respond and are other out-worlds going to suffer Derzon's fate?

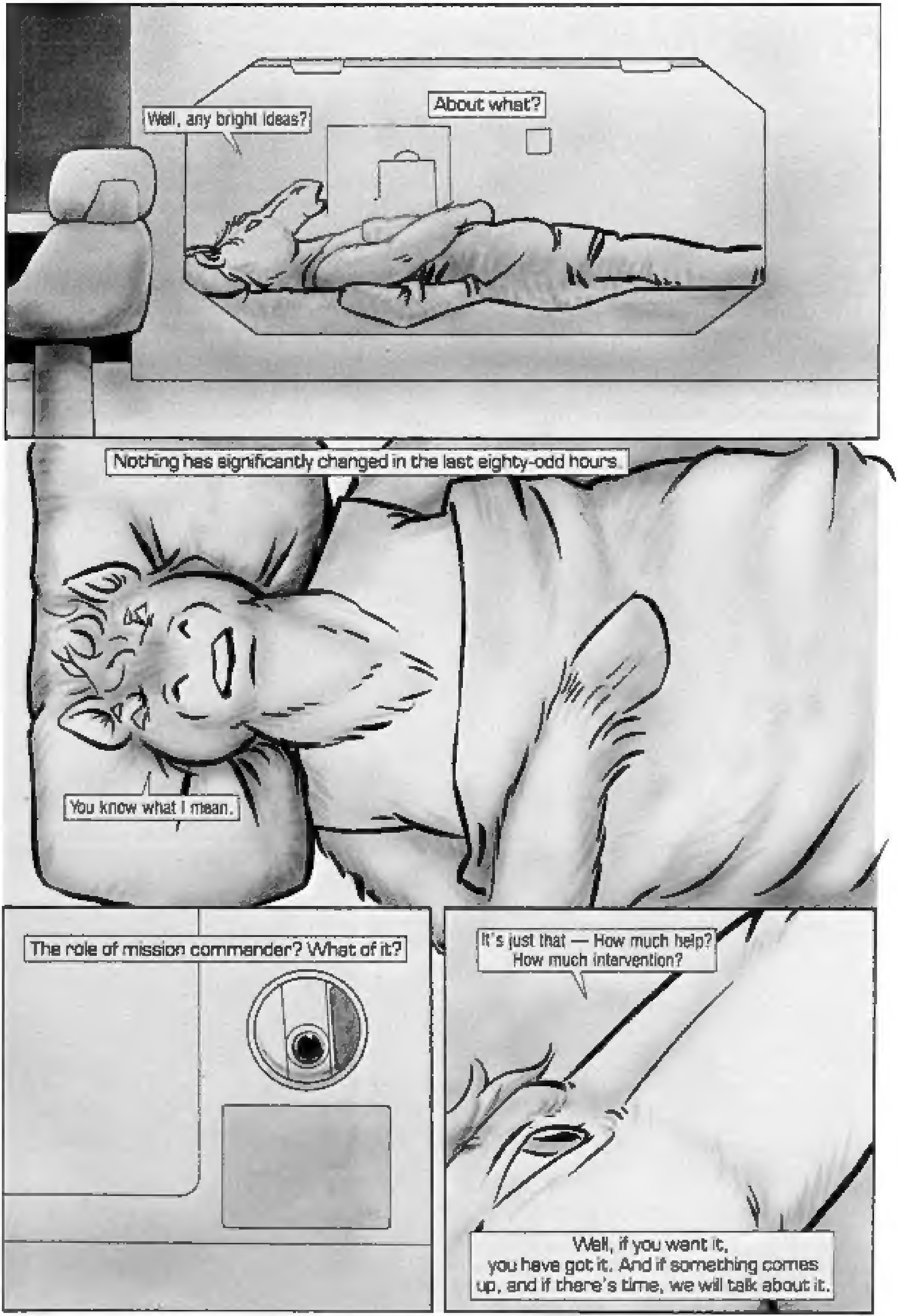


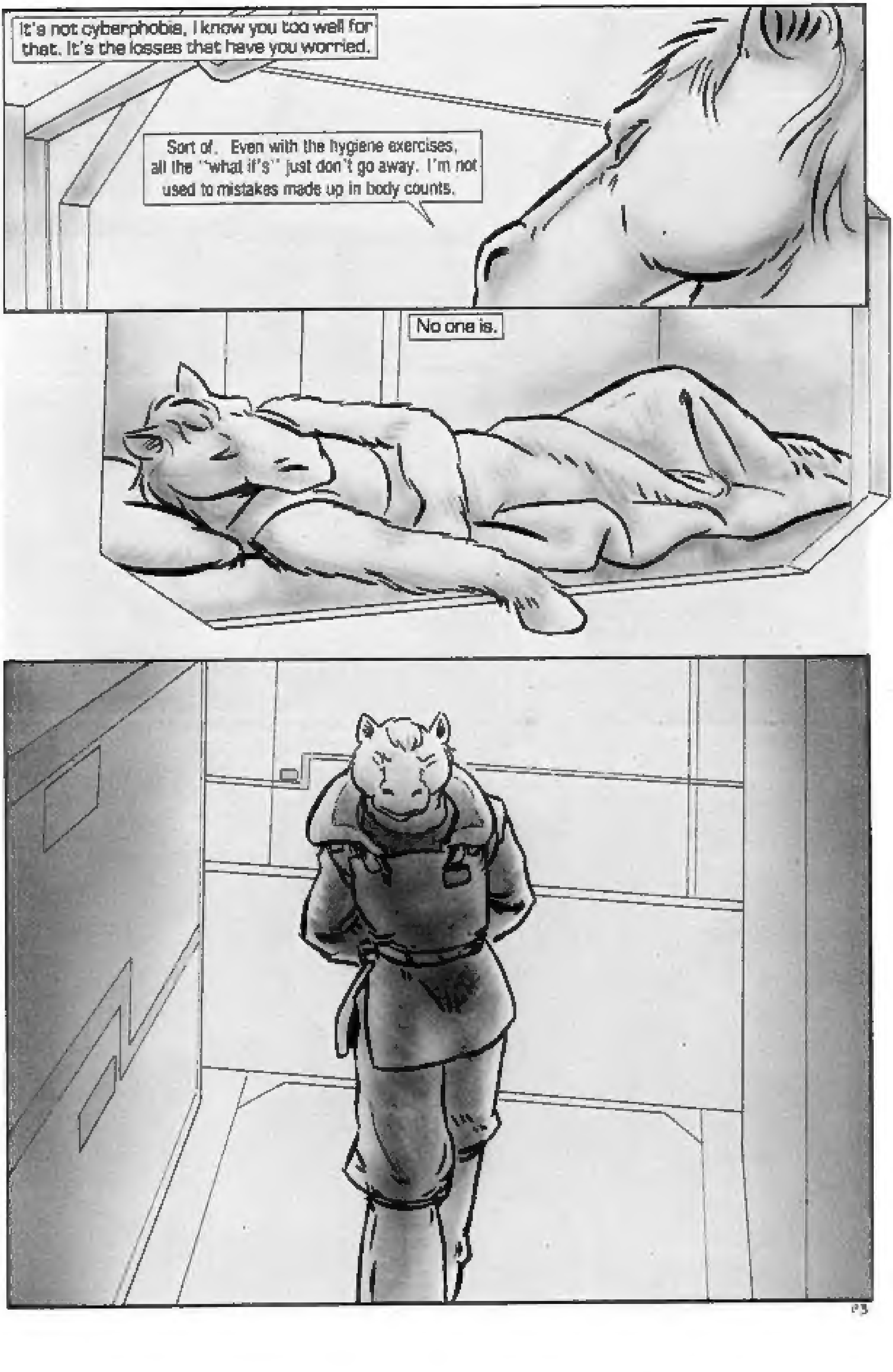
to hear of your new posting, and relieved that you've fully recovered from your warwounds. Your brother, ...gh admittedly a touch jealous, is justifiably proud of his older sister's exploits. He has just earned his aerospace wings and is waiting for a permanent homeguard posting. There is a chance that a position might become available here in Annianport. As for your new assignment, Joeseph Arrat came by last week to tell us about it in detail. I suppose it might be something of a let-down after all your adventure, but it will give you an ...pportunity for advancement. Joeseph's son, Itzak, you remember him, has his own ship, the DH270. It's a high-endurance destroyer out on far-rim patrol.

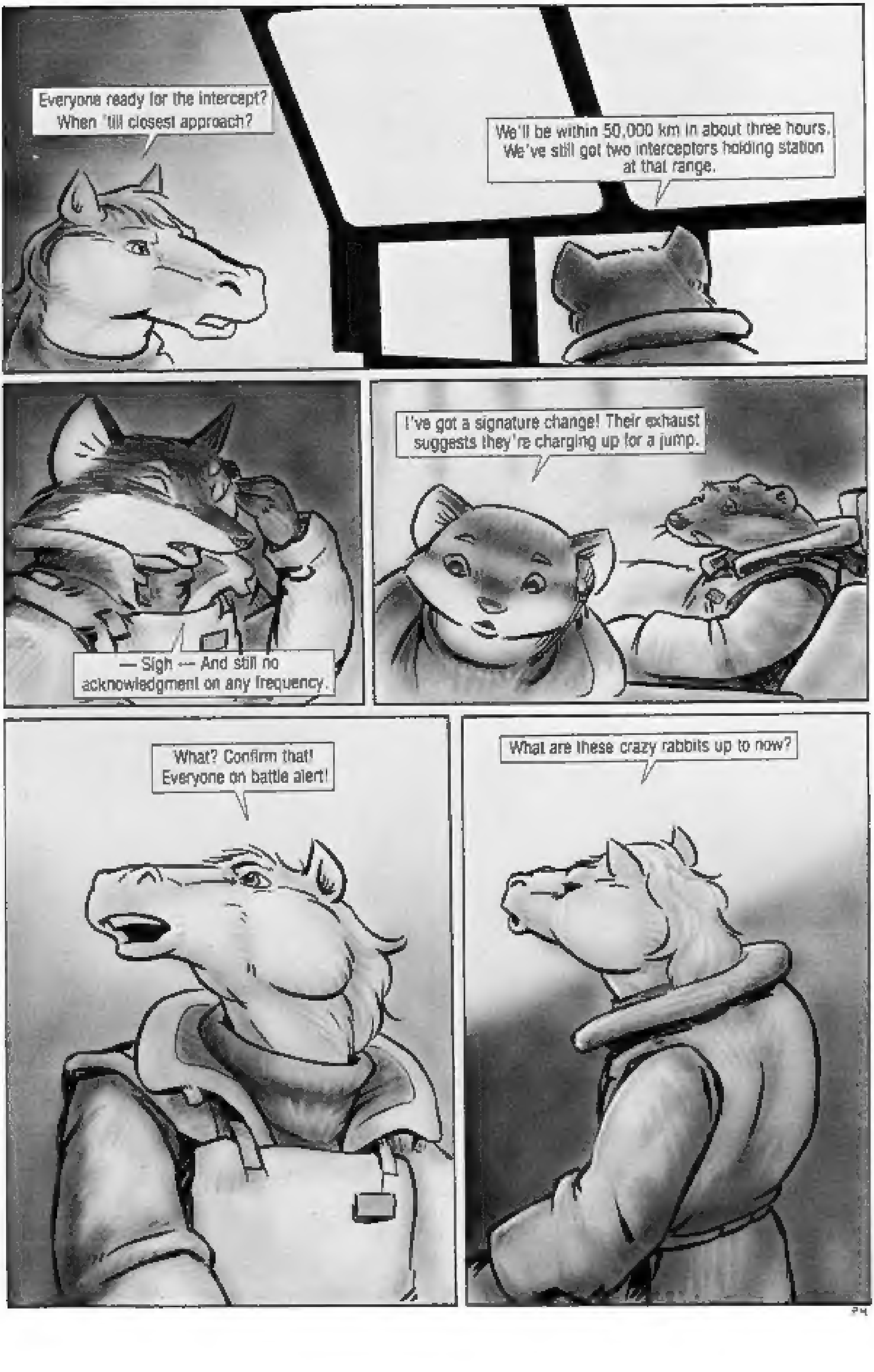
Your father hasn't reacted to the Derzon news yet but your last message left him even more withdrawn than usual. I wish you'd be more careful when you prepare a transmittal. That's all for now. Eda Kamatti Felna

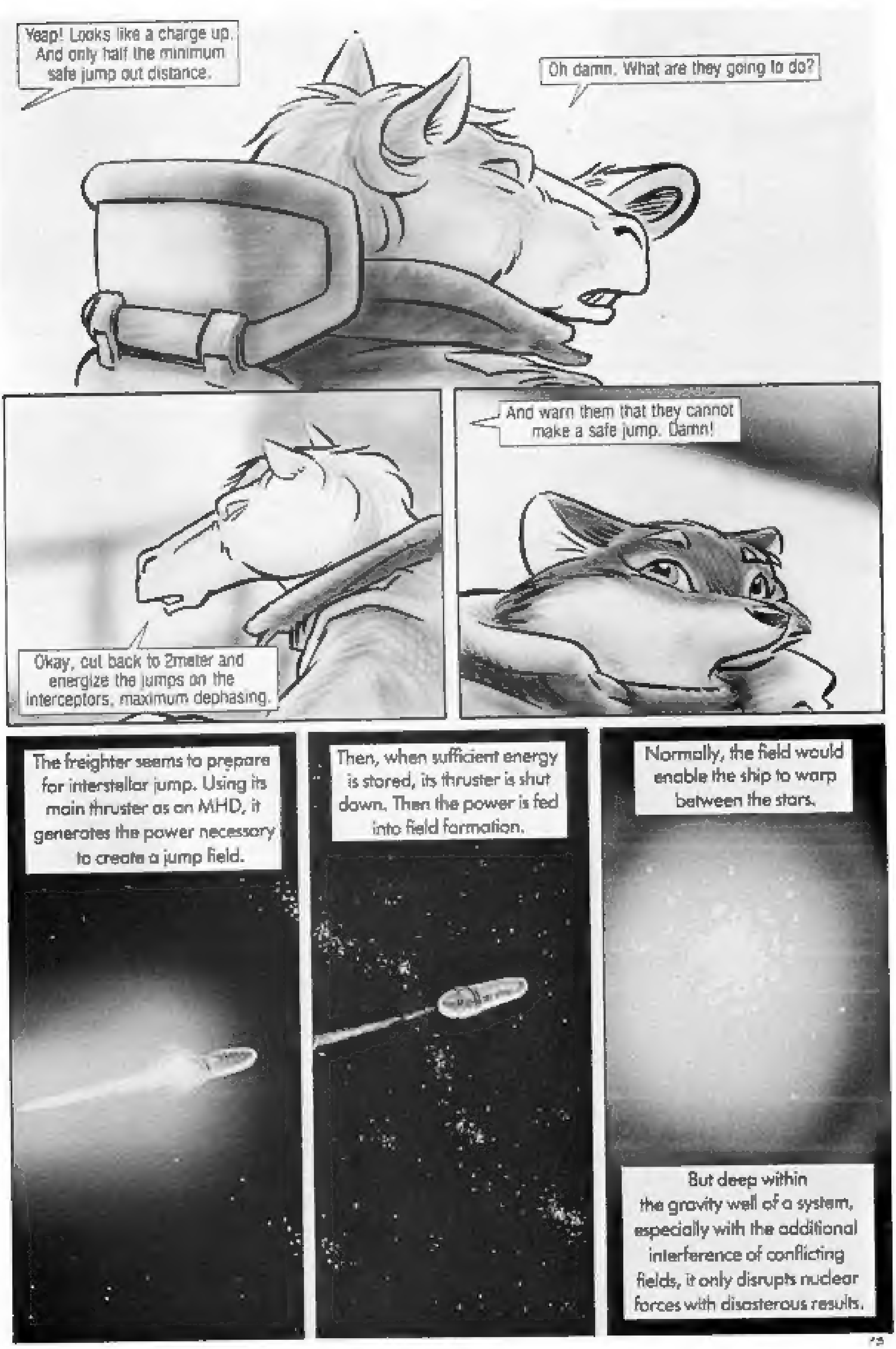
DH270 Captain Itzak Arrat/Mission Commander Kaina Hiak Mission Events Review Investigation of interruption in civilian communication in Chisheta System CKN 198195 Two unknown vessels sighted in vicinity of refinery station KN382. Departed that position upon sighting DH270. Shortly thereafter, station was destroyed by fusion device. One vessel, tentatively identified as a 50,000 ton freighter, set a fleeing course out-system. The other, a 10,000 ton general purpose hull, attempted a hostile delay/intercept against the DH270 using Class 2 ACVs. The hostile vessel was destroyed in the engagement and the DH270 suffered significant damage. One crewman, Daion Mateoshat, was killed. Another, Helmut Kvina received temporary injuries. Mission Commander Kaina Hiak was extensively injured and remains on full life support. The DH270 is now attempting to intercept the freighter and search and rescue teams have been deployed to discern the fate of the ten other refining activities. No communications have been achieved with any of the stations and the mysterious vessels have not been fully identified nor acknowledged any hailing.

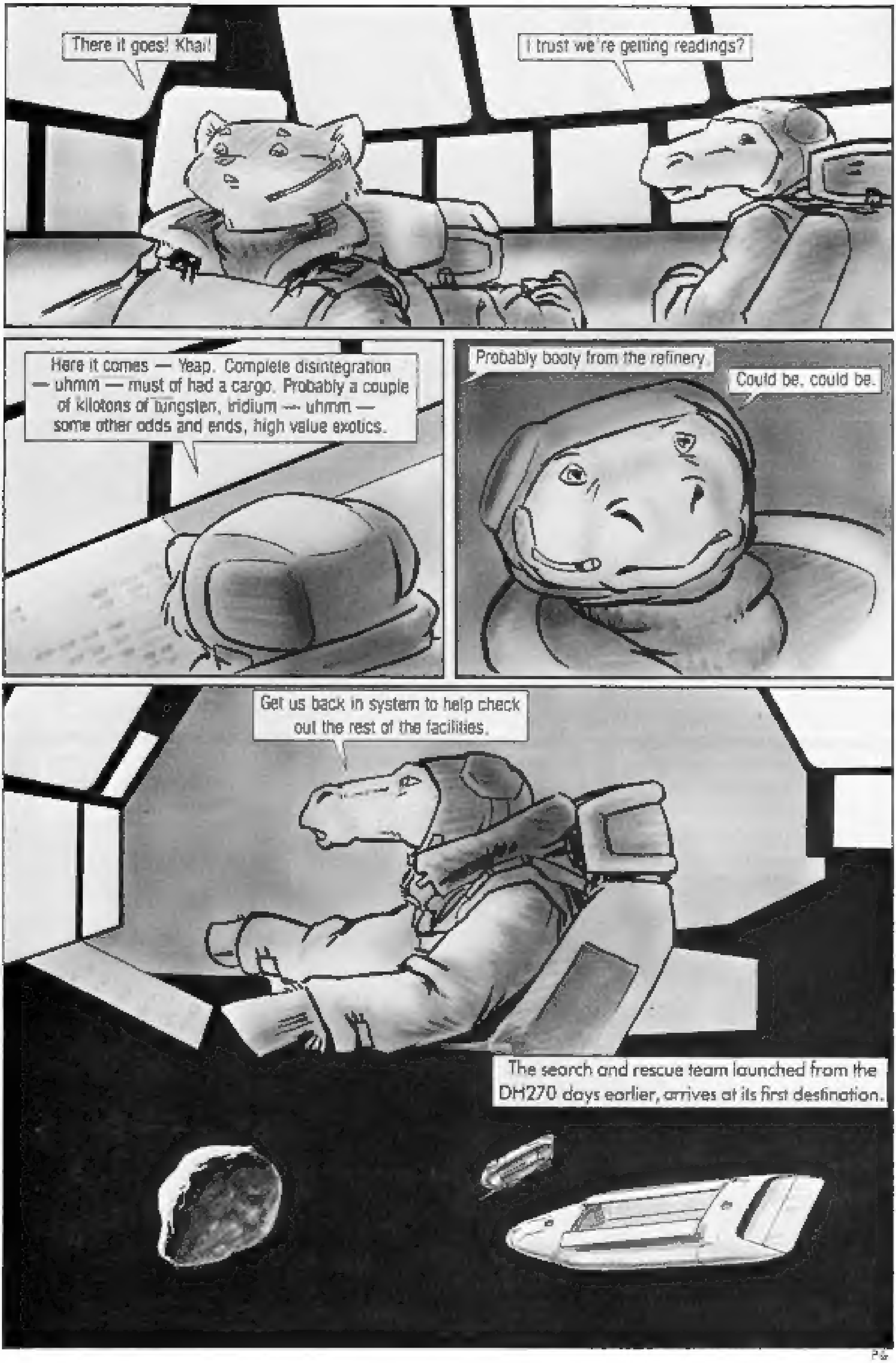


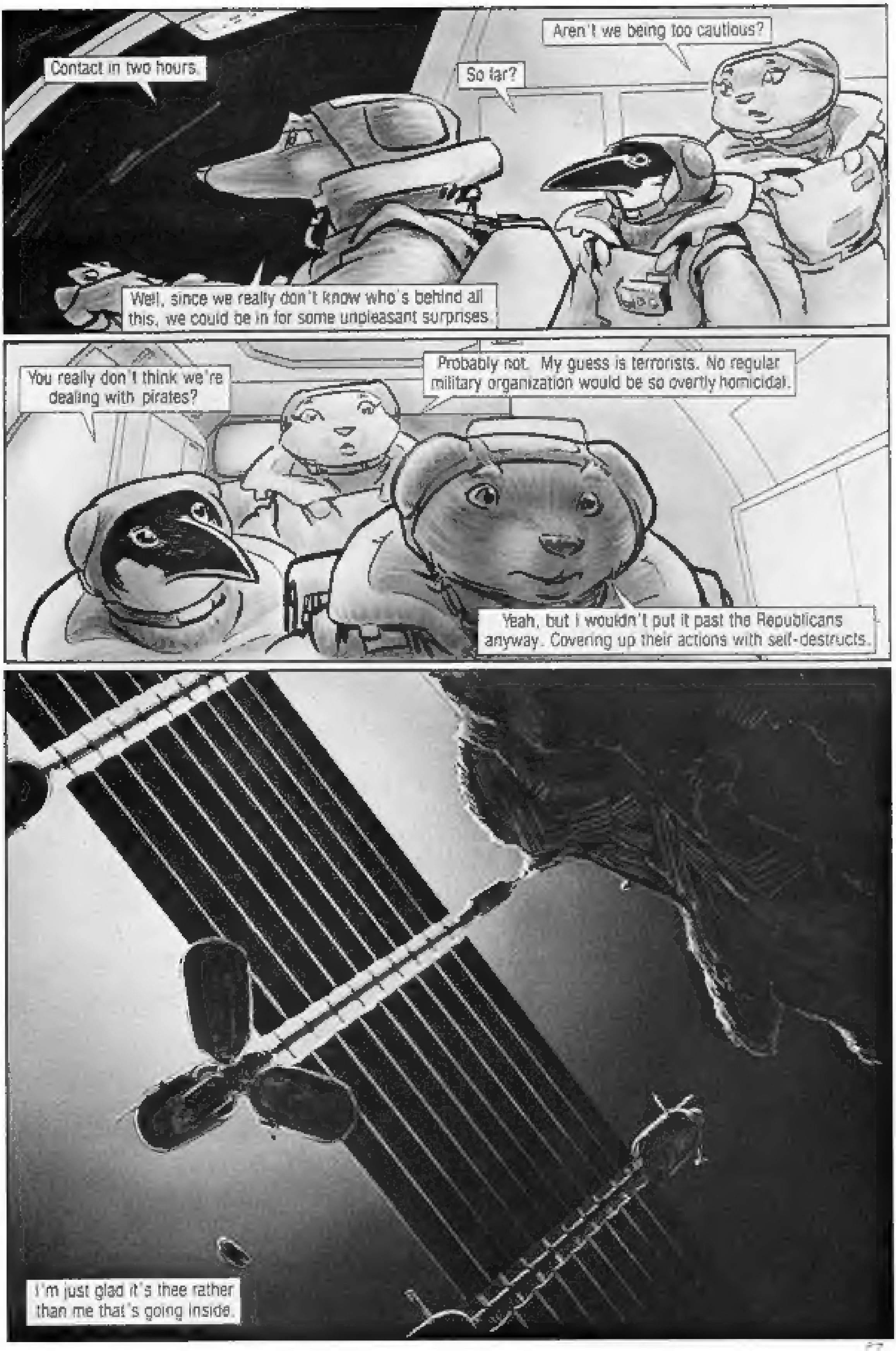

Well, any bright ideas?
About what?
Nothing has significantly changed in the last eighty-odd hours.
You know what I mean.
The role of mission commander? What of it?
It's just that — How much help? How much intervention?
Well, if you want it, you have got it. And if something comes up, and if there's time, we will talk about it.

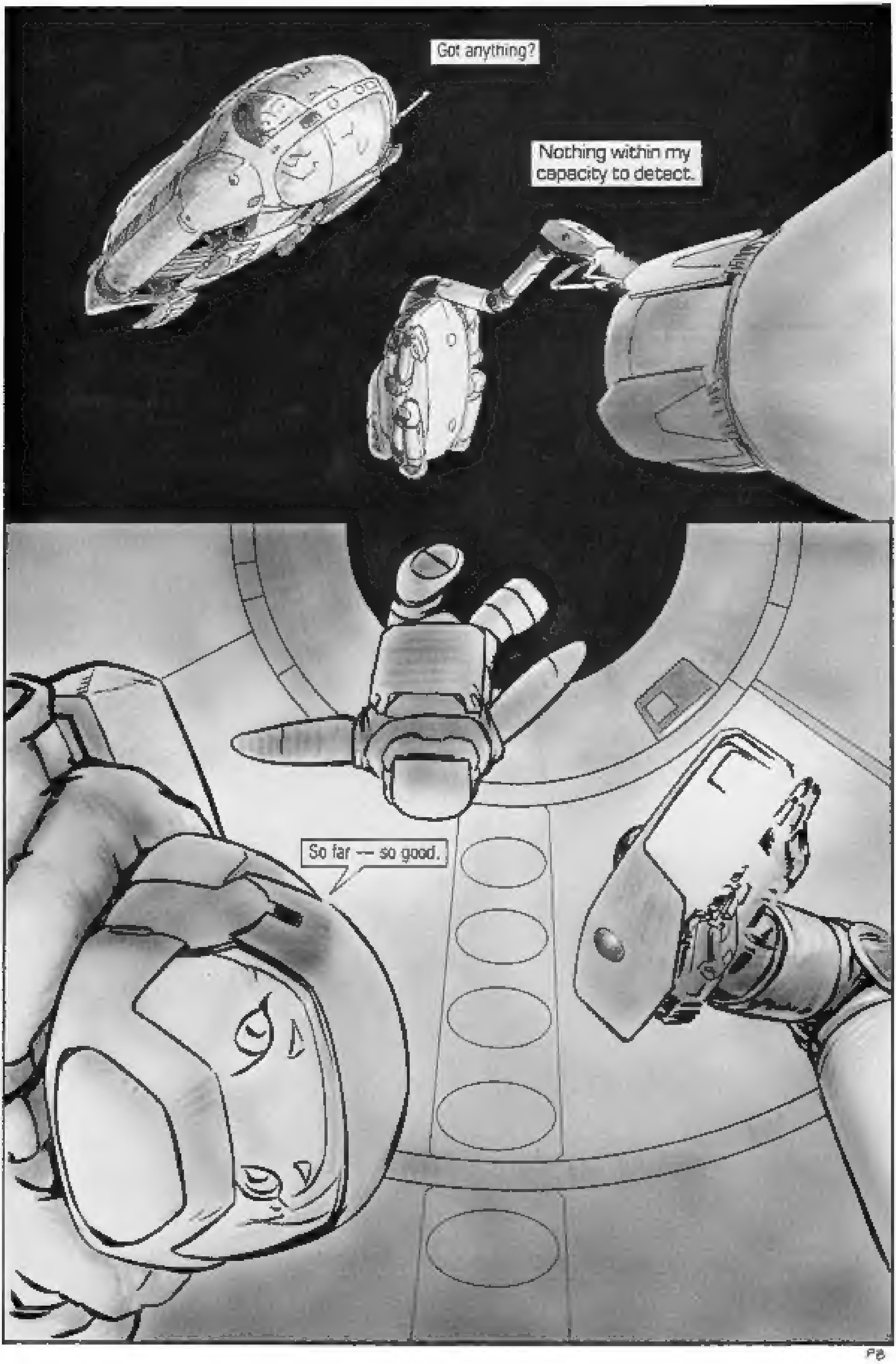

It's not cyberphobia, I know you too well for that. It's the losses that have you worried.
Sort of. Even with the hygiene exercises, all the "what if's" just don't go away. I'm not used to mistakes made up in body counts.
No one is.

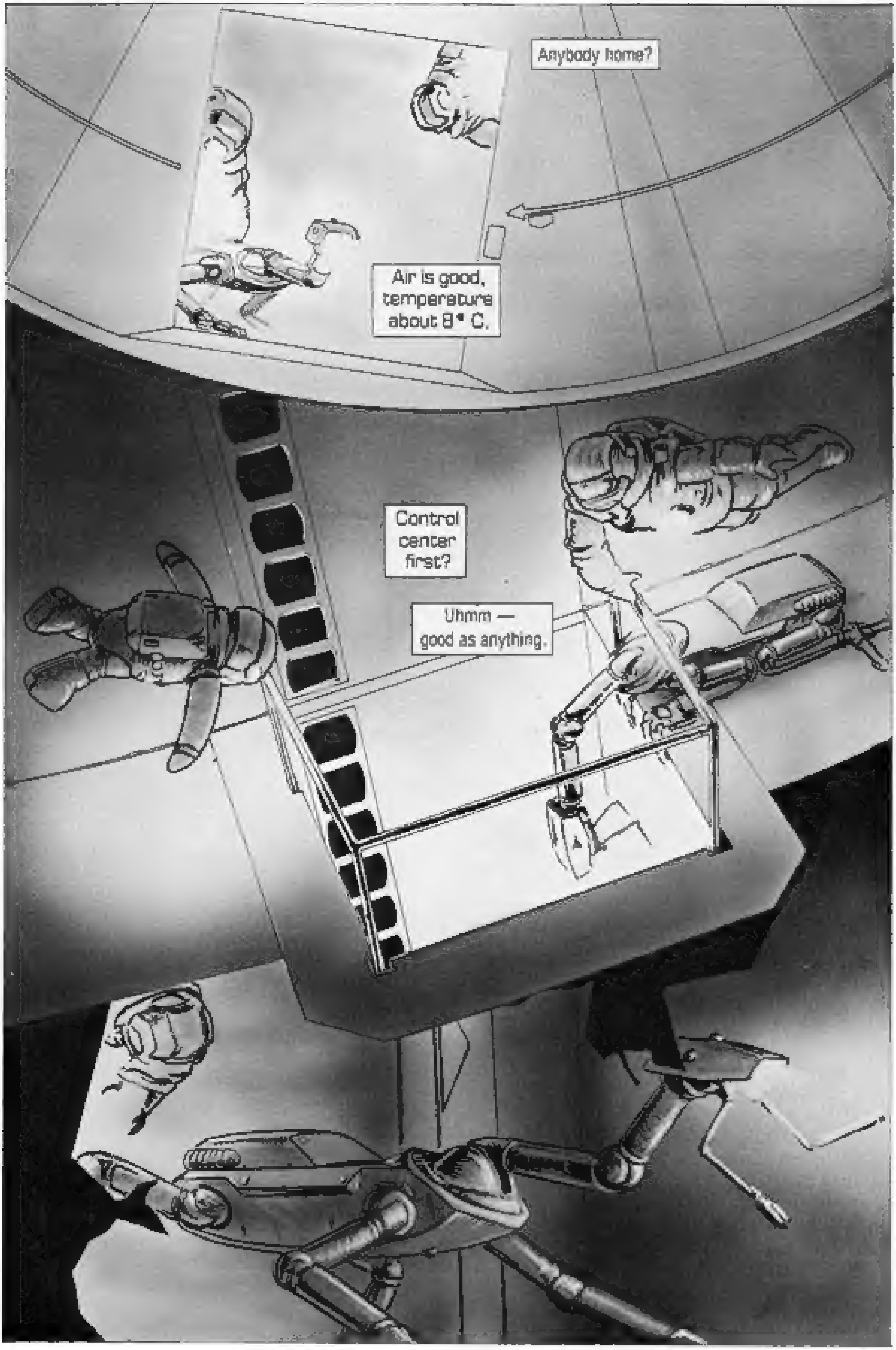

Everyone ready for the intercept? When 'till closest approach?
We'll be within 50,000 km in about three hours. We've still got two interceptors holding station at that range.
— Sigh — And still no acknowledgment on any frequency.
I've got a signature change! Their exhaust suggests they're charging up for a jump.
What? Confirm that! Everyone on battle alert!
What are these crazy rabbits up to now?

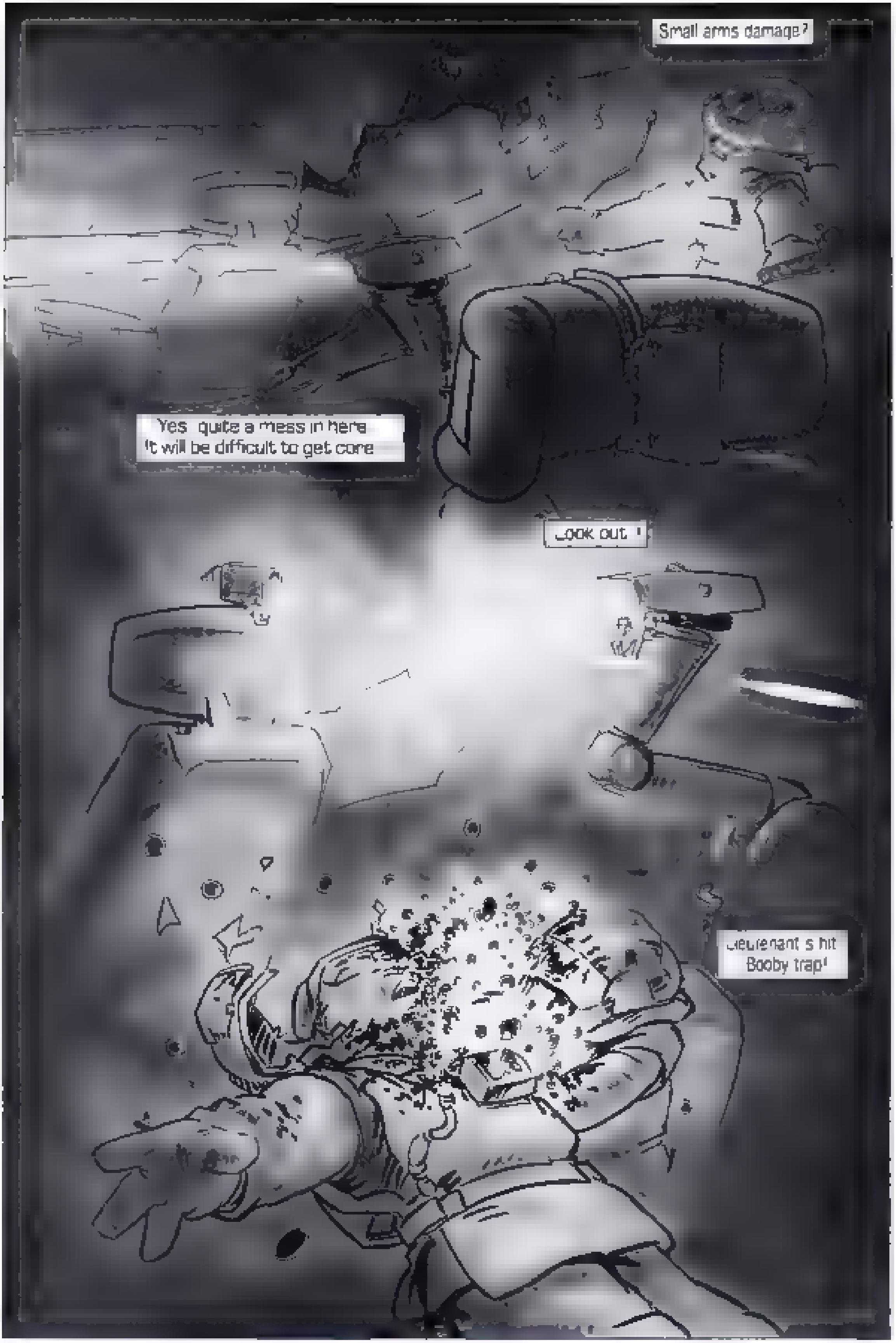

Yeap! Looks like a charge up. And only half the minimum safe jump out distance.
Oh damn. What are they going to do?
Okay, cut back to 2meter and energize the jumps on the interceptors, maximum dephasing.
And warn them that they cannot make a safe jump. Damn!
The freighter seems to prepare for interstellar jump. Using its main thruster as an MHD, it generates the power necessary to create a jump field.
Then, when sufficient energy is stored, its thruster is shut down. Then the power is fed into field formation.
Normally, the field would enable the ship to warp between the stars.
But deep within the gravity well of a system, especially with the additional interference of conflicting fields, it only disrupts nuclear forces with disasterous results.

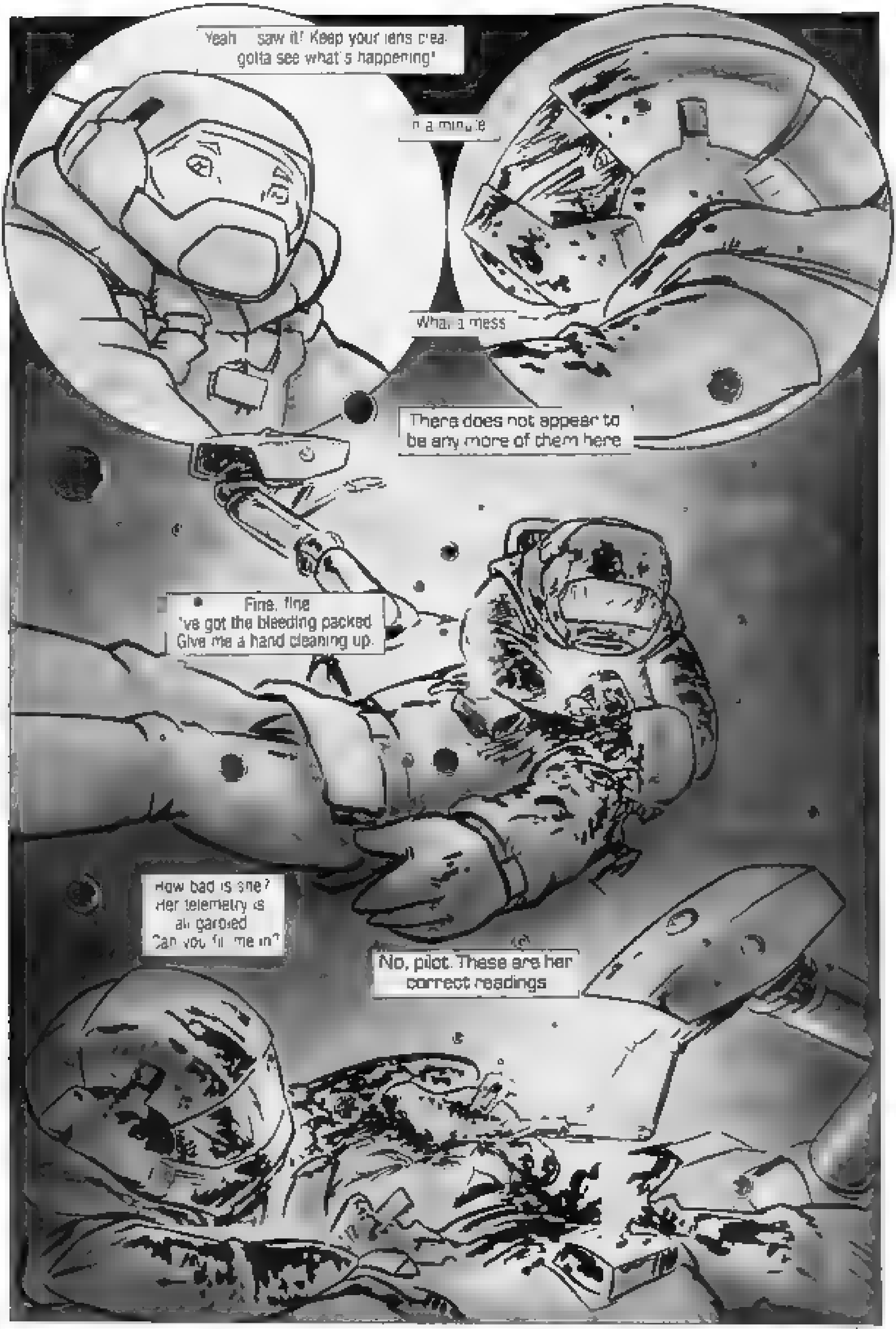

There it goes! Khai!
I trust we're getting readings?
Here it comes — Yeap. Complete disintegration — uhmm — must of had a cargo. Probably a couple of kilotons of tungsten, iridium — uhmm — some other odds and ends, high value exotics.
Probably booty from the refinery.
Could be, could be.
Get us back in system to help check out the rest of the facilities.
The search and rescue team launched from the DH270 days earlier, arrives at its first destination.

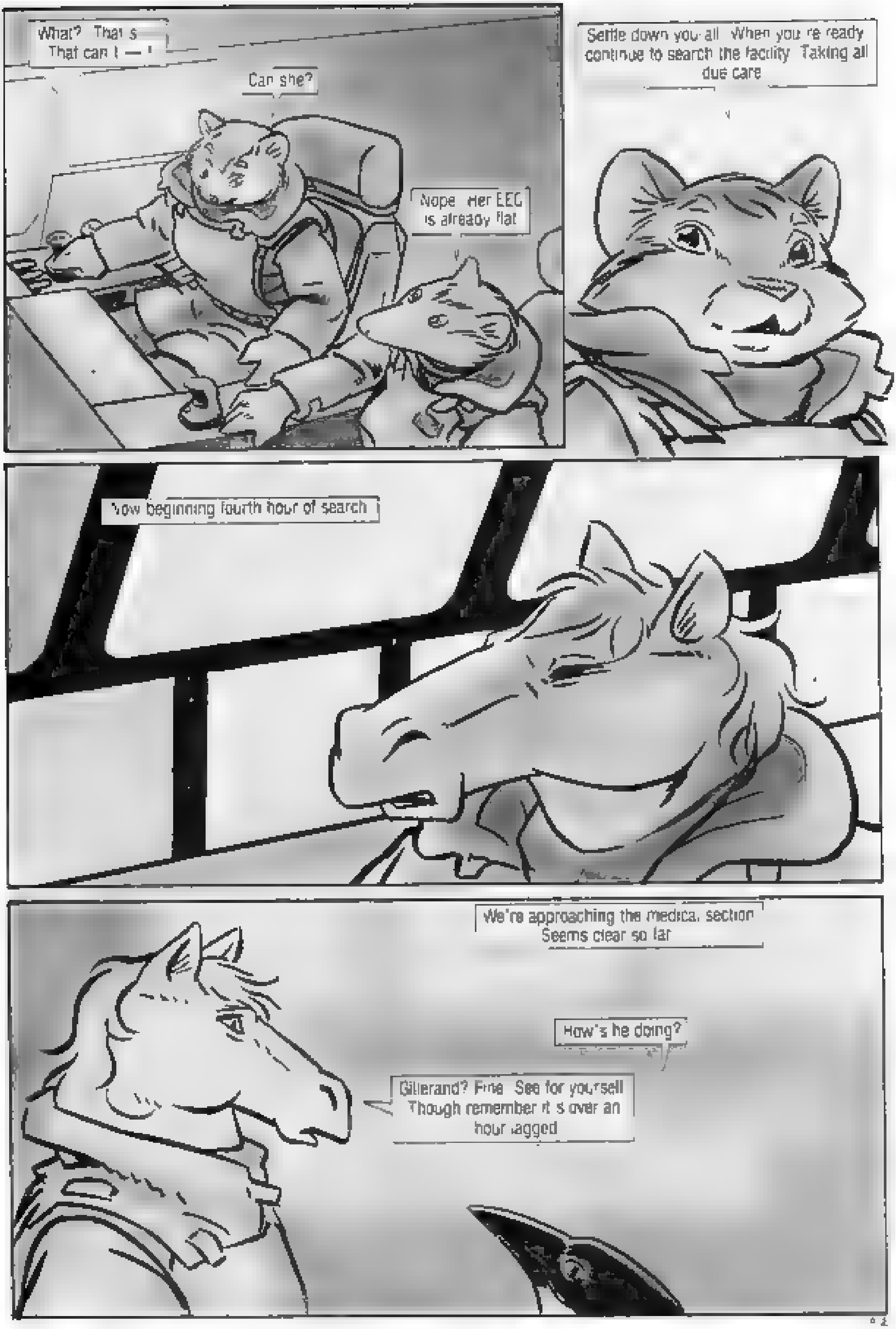

Contact in two hours.
So far?
Aren't we being too cautious?
Well, since we really don't know who's behind all this, we could be in for some unpleasant surprises.
You really don't think we're dealing with pirates?
Probably not. My guess is terrorists. No regular military organization would be so overtly homicidal.
Yeah, but I wouldn't put it past the Republicans anyway. Covering up their actions with self-destructs.
I'm just glad it's thee rather than me that's going inside.

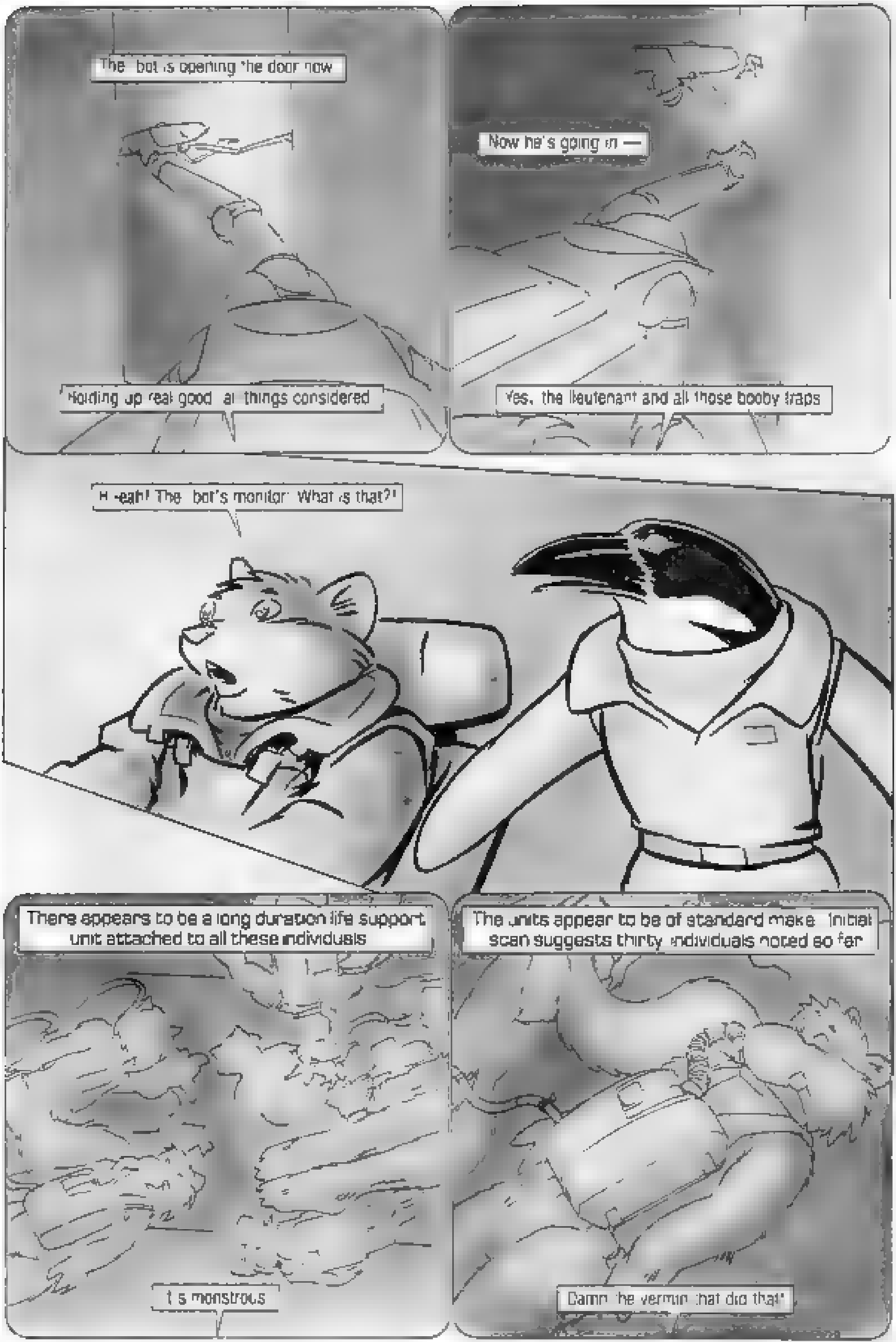

Got anything?
Nothing within my capacity to detect.
So far — so good.

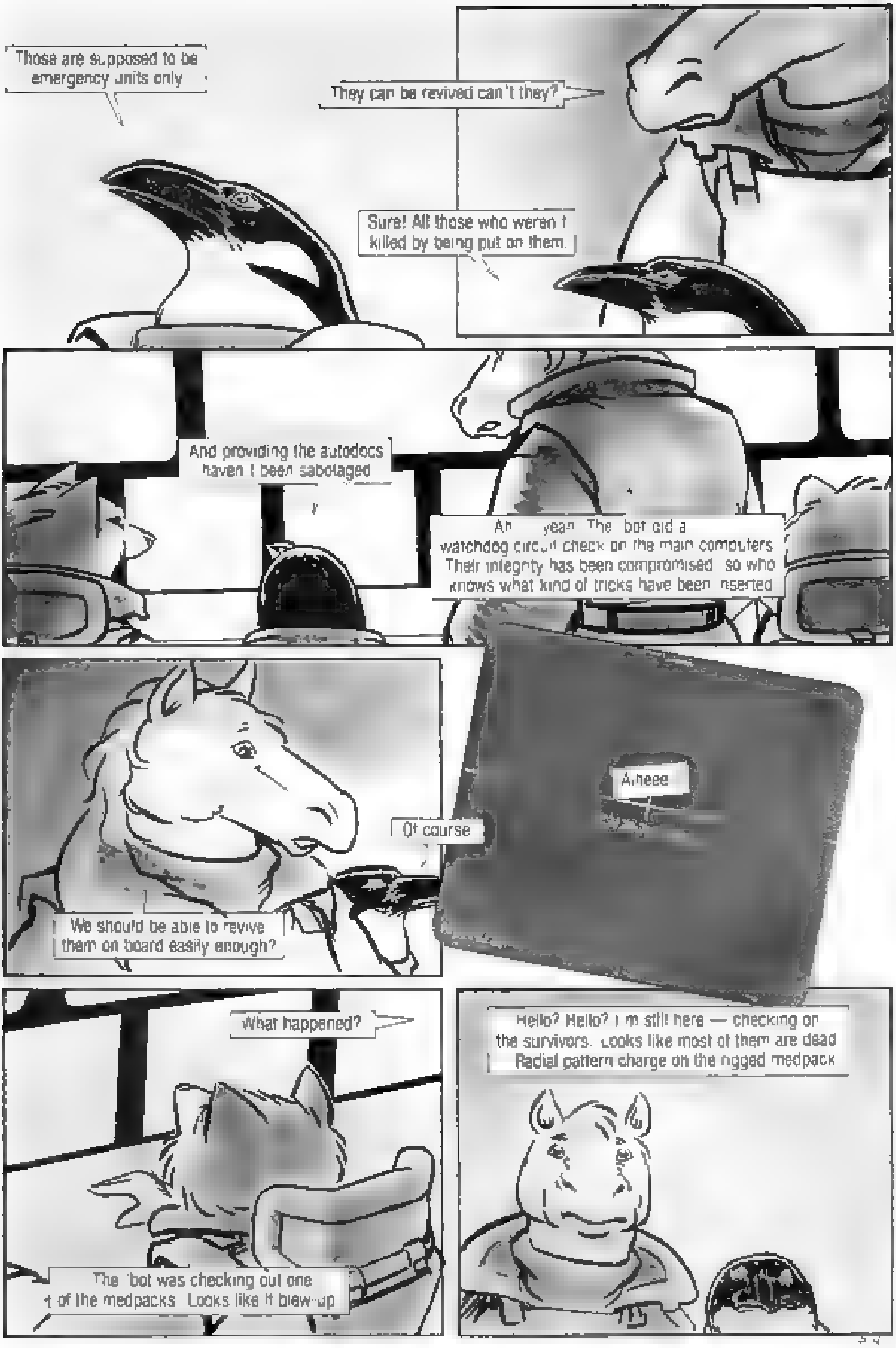

Anybody home?
Air is good, temperature about 8° C.
Control center first?
Uhmm — good as anything.

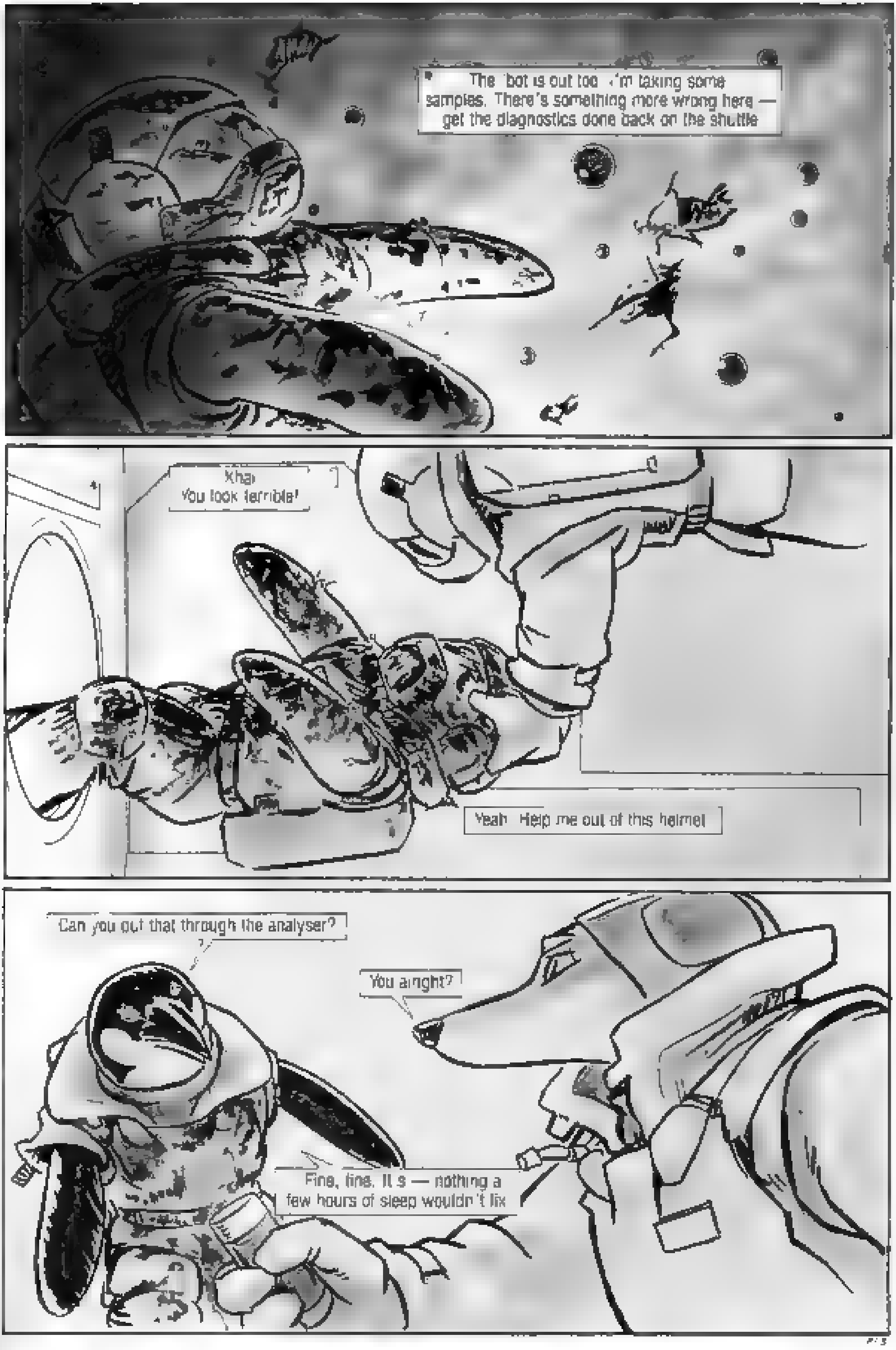

Small arms damage?
Yes, quite a mess in here
It will be difficult to get core
Look out!
Lieutenant's hit
Booby trap!

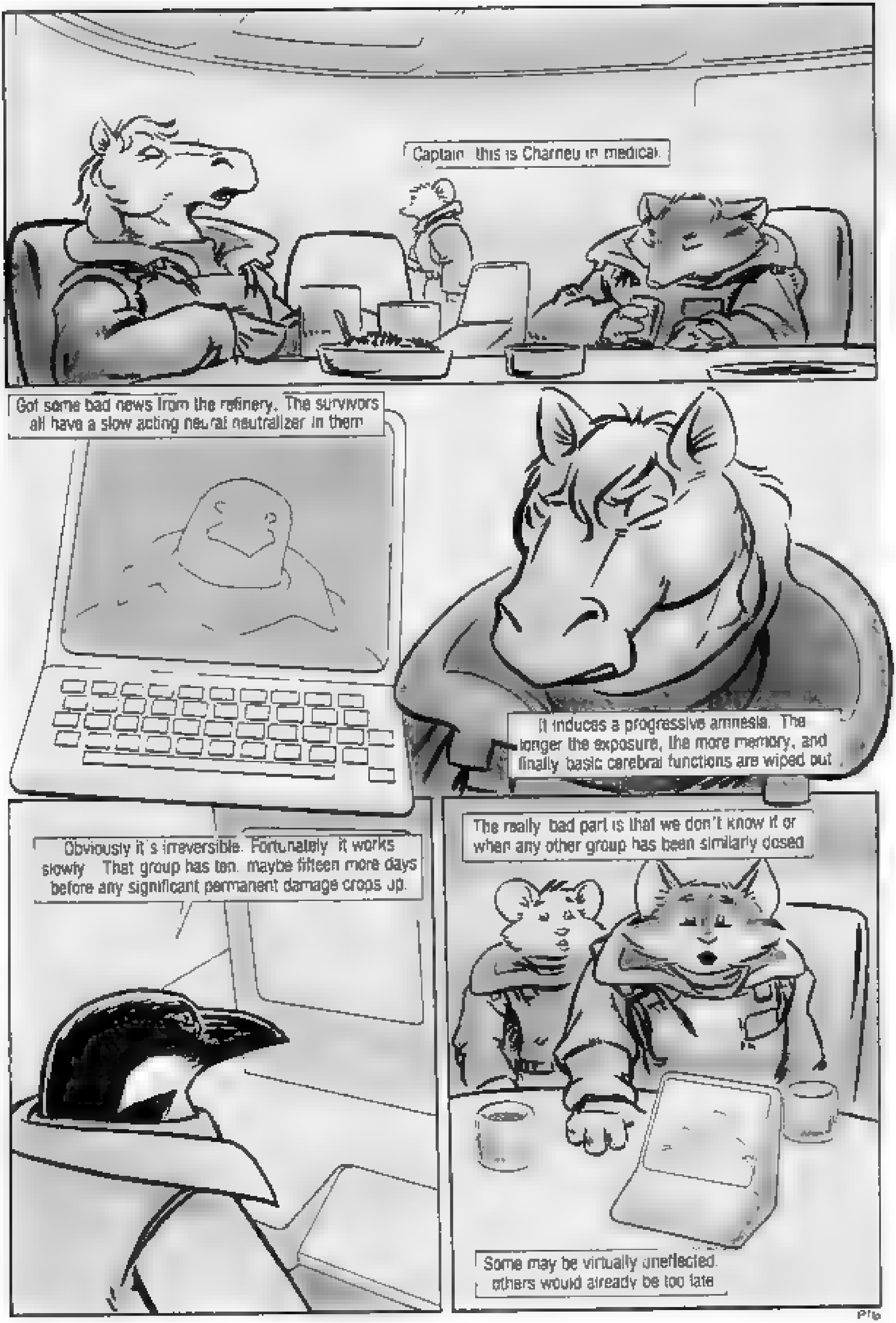

Yeah — saw it! Keep your lens clea… gotta see what's happening!
…n a minute
What a mess
There does not appear to be any more of them here
Fine, fine. I've got the bleeding packed. Give me a hand cleaning up.
How bad is she? Her telemetry is all garbled. Can you fill me in?
No, pilot. These are her correct readings.

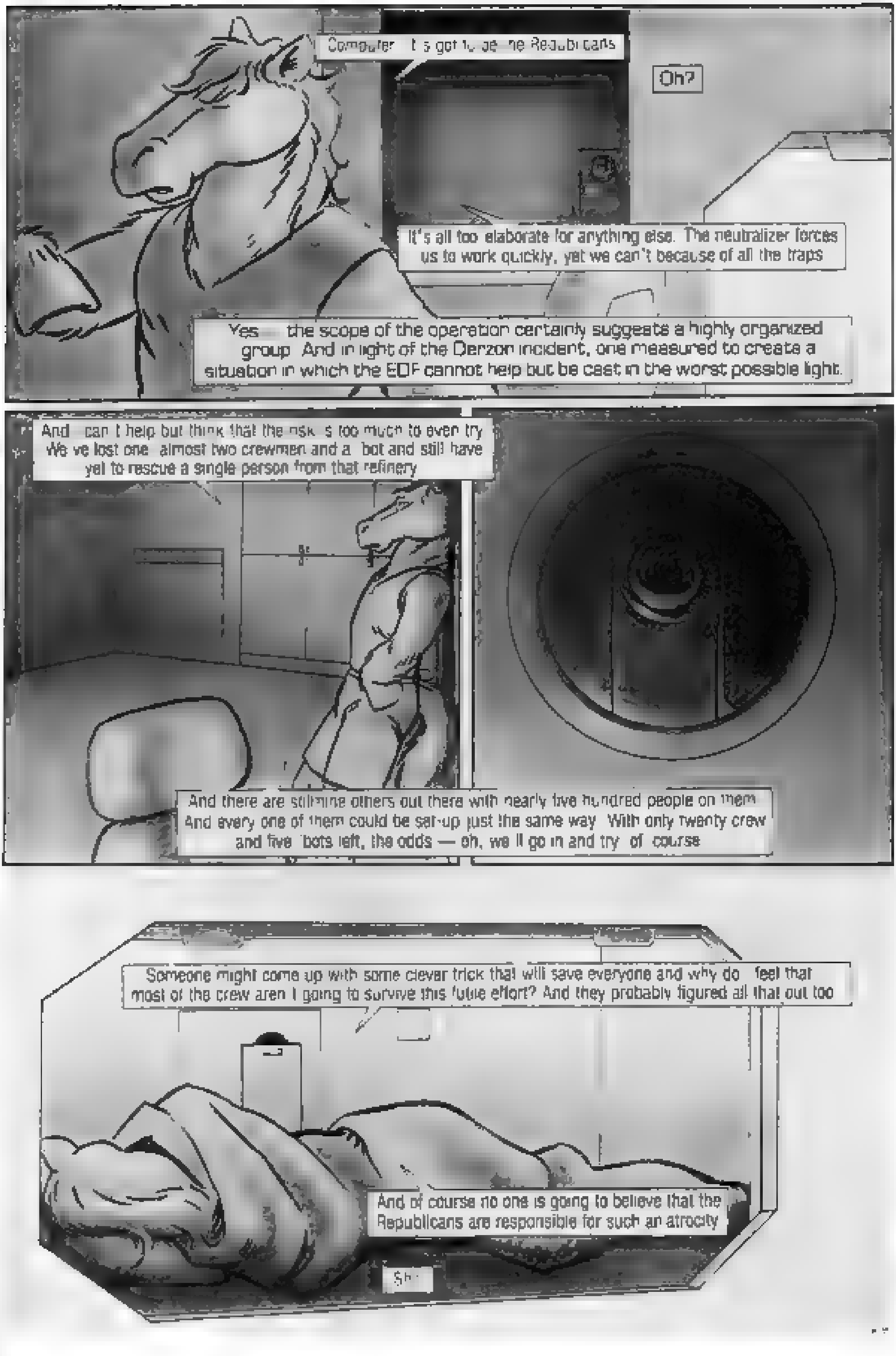

What? That's— That can't —!
Can she?
Nope. Her EEG is already flat.
Settle down you all. When you're ready continue to search the facility. Taking all due care.
Now beginning fourth hour of search.
We're approaching the medical section. Seems clear so far.
How's he doing?
Gillerand? Fine. See for yourself. Though remember it's over an hour lagged.


The bot is opening the door now
Holding up real good all things considered
Now he's going in —
Yes, the lieutenant and all those booby traps
H-eah! The bot's monitor! What is that?!
There appears to be a long duration life support unit attached to all these individuals
It's monstrous
The units appear to be of standard make. Initial scan suggests thirty individuals noted so far
Damn the vermin that did that!


Those are supposed to be emergency units only
They can be revived can't they?
Sure! All those who weren't killed by being put on them.
And providing the autodocs haven't been sabotaged
Ah yeah The 'bot did a watchdog circuit check on the main computers Their integrity has been compromised so who knows what kind of tricks have been inserted
We should be able to revive them on board easily enough?
Of course
Aheee
What happened?
The 'bot was checking out one of the medpacks Looks like it blew-up
Hello? Hello? I'm still here — checking on the survivors. Looks like most of them are dead Radial pattern charge on the rigged medpack


The 'bot is out too. I'm taking some samples. There's something more wrong here — get the diagnostics done back on the shuttle
Xha!
You look terrible!
Yeah. Help me out of this helmet
Can you put that through the analyser?
You alright?
Fine, fine. It's — nothing a few hours of sleep wouldn't fix


Captain this is Charneu in medical.
Got some bad news from the refinery. The survivors all have a slow acting neural neutralizer in them
It induces a progressive amnesia. The longer the exposure, the more memory, and finally basic cerebral functions are wiped out.
Obviously it's irreversible. Fortunately it works slowly. That group has ten, maybe fifteen more days before any significant permanent damage crops up.
The really bad part is that we don't know if or when any other group has been similarly dosed
Some may be virtually unaffected, others would already be too late


Computer it's got to be the Republicans
Oh?
It's all too elaborate for anything else. The neutralizer forces us to work quickly, yet we can't because of all the traps
Yes — the scope of the operation certainly suggests a highly organized group And in light of the Derzon incident, one measured to create a situation in which the EDF cannot help but be cast in the worst possible light.
And I can't help but think that the risk is too much to even try We've lost one almost two crewmen and a 'bot and still have yet to rescue a single person from that refinery
And there are still nine others out there with nearly five hundred people on them And every one of them could be set-up just the same way With only twenty crew and five 'bots left, the odds — oh, we'll go in and try of course
Someone might come up with some clever trick that will save everyone and why do I feel that most of the crew aren't going to survive this futile effort? And they probably figured all that out too
And of course no one is going to believe that the Republicans are responsible for such an atrocity
Sh

History began for the various intelligent species of Andura, with what could only be described as an awakening. Over a span of several years, individuals began to wonder where their sophisticated technical civilization came from. The question eventually brought about an intense investigation that not only discovered no archaeological evidence of a prehistory but no significant genetic relationship between the 180 intelligent races that made up the population and the biosphere of the planet. The conclusion that they were all part of some manner of colonization effort initiated by an as yet unknown agency some indeterminate time in the near past was suggested and has yet to be confirmed or denied. The idea of an extra-planetary or even extra-solar origin prompted the development of their own space-faring capability to both search for their source and to begin their own colonization efforts.

Interplanetary travel was made practical with an efficient fusion propulsion reactor. Later, interstellar travel became feasible with the development of the so-called jump drive. It would effectively toss one outside the universe and then back again, only the return point would be light-years distant. The only effective limits are the necessity of operating it well outside the gravitational influences of a solar system, often several light-hours distant. Then, the destination must be the next gravity well in the line of flight. However, even a short system to system jump might take some months as the ship must accelerate well out-system, limited to the Gee-tolerance of the passengers. The jump itself seems to be instantaneous, then the ship must decelerate back down to make planet fall. No anti-acceleration or anti-gravity technologies exist, and while basic research continues, most technologies seem to have largely plateaued out over the last century.

The first wave of colonization was a careful organized and systematic effort involving fifteen planets over a fifty year period. The dedication and professionalism in these early colonists have become a part of their new distinct cultures. The next generation of colonies, more than fifty stretched over a hundred light-year radius, were more casual in approach and their populations often established more radical socio-economic environments. Two of these, Hishhonch and Balienraan, made up mostly of rabbits, decided that continued expansion of their particular society would be easier by taking over the built-up infrastructures of their neighbors rather than develop new worlds from scratch.

So began a messy and protracted war between the now so called Independent Lapine Republic and the hastily formed Confederation made up of just about everyone else. The Confederation established the Extra-Planetary Defense Force as a combined military organization to deal with the ILR or any other threat to interplanetary peace.

It was during the early phases of the war when Kanoc Felna, a cadet studying out of the Ecktorian capital campus, met Eda Kerheth, a student there. After a rather complicated courtship, they married and shortly thereafter Kanoc went active. He was allowed to return when informed that Eda was about to have a baby. Kanoc's arrival at the spaceport coincided with a terrorist attack, which he in turn helped suppress. During that attack, Erma was born prematurely. While both she and Eda suffered no serious or permanent physical trauma, Eda sustained subtle and lasting psychological injury. She was not too enthusiastic in Erma's upbringing, and since fertility in the species is a voluntarily controlled function, it would be five years before she would bear a second child. Kanoc, however, was a dedicated father and encouraged Erma towards a future in aerospace early on. When Erma's brother Arec was born, Eda was more responsive and at times a bit over-protective with her son. Not long after, Kanoc was called back into combat and participated in several of the decisive battles of the rabbit war. He was, however, captured by the rabbits and suffered insidious psychological torture. Only several years after his repatriation did the full extent of it become evident. After witnessing an accident, he fell permanently into a quiet and largely unresponsive psychosis.

Erma's career started straightforwardly enough, first as a Dorrelhame Homeguard cadet and later as an EDF pilot officer. While assigned to the 86 Aerospace Defense Squadron (ASASqd) on Dorrel, she participated in stopping a terrorist sniper and was awarded various awards for heroism and airmanship. After her reassignment to the 255 ASASqd on Fortha, she met Tavas Aphon, an aerospace defense fighter pilot. They maintained an intimate relationship for more than two years but that was abruptly ended with news of renewed adventurism on the part of the ILR. A small expeditionary force had seized the colony world of Derzon and Erma's unit was among those called up to resecure it. Tavas insisted that they marry and opt-out of combat service. She rebuffed him and went on to be part of the assault spearhead. During the landings, her ship was disabled and she ended up with a ground unit working its way through the capital city of Anda. Near the end of hostilities, Erma ran across a last unit of resistance and was injured in an exchange of fire. As she recovered, she became aware of a small faction within the EDF that intended to keep her out of the mainstream of activity. That effort was deflected somewhat by some of the old guard that supported her by sending her to Ekosiak. That assignment kept her well away from any ILR action but at the same time put her in a critical position in that socio-politically volatile colony.

Meanwhile, eighty light-years away, the OH270 is investigating mysterious goings on in the Chiphala system.

Here's a basic Erma to provide some form and proportion for the interested. She's actually just a regular EDF kind of feline female officer. Unlike many individuals, she has only the barest stub of a tail. Lots of head hair is also not always a female characteristic or fashion. Erma's base fur color is a light gold-brown, slightly paler in front, scalp hair is dark red-brown, and eyes, green-gold. She's of average height for the species, about 140cm. Males would be only a few centimeters taller.

For those interested in her "specs," excerpts from her official dossier read something like this:

Feina, Erma
EDFSN 575 395 2020
Officer Grade 3

Born SD 171-01-22, Annianport, Annah (Dornthant II)

Education:

S. Education LHE-M PMI/HGA (Dornthant Homeguard Academy) Grad. 189-09-18 GPA 4.0 SPI 3.85 (Socio-Psych-Intel)

EDF Academy, Dornthant Grad. 191-11-30 GPA 3.95 SPI 3.80

EDF Academy, Danet Pilot Training Rate 3.90 SPI 3.95

EDF Academy, Danet Officer Training Rate 3.90 SPI 3.95

EDF OJT, Danet TASGO/GC (Tactical Aerospace-Ground Operations/Ground Command) Rate 4.0 SPI 4.0

Qualifications (skill levels, not necessarily authority):

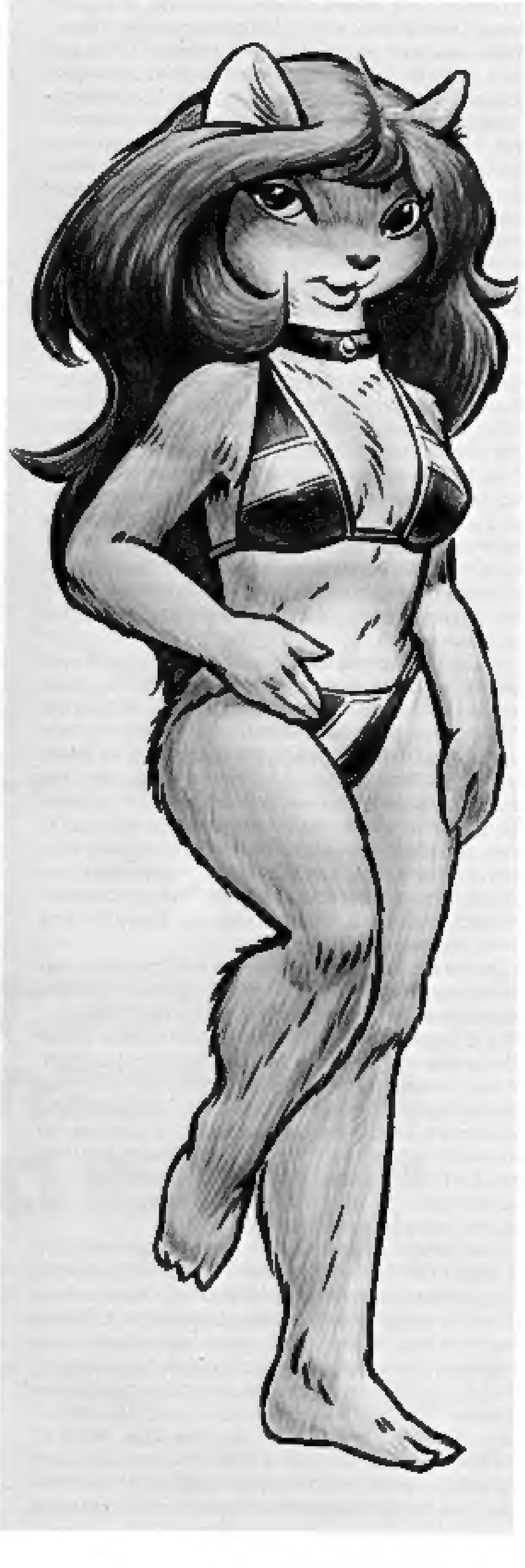
Class B Aerospace Aircrew, General (roughly equivalent to able bodied seaman)

Class C Aerospace Pilot, to 8KT. (Qualified to fly any Aerospace craft to 8,000 tons)

Combat Command Rating, General T-5 (Qualified to make immediate tactical decisions for any branch of service up to Colonel, Limited strategic)

Combat Command Rating, Special S-2 (Qualified to make regional/planetary short-term strategic plans within area of expertise, in this case, Aerospace assault and defense, up to General of forces)

Combat Weapons Rating Class D and Special (Proficient in all regular "man" portable weapons and basic tactics, Special, all weapons normally carried on assault and defensive craft to 8,000 tons)



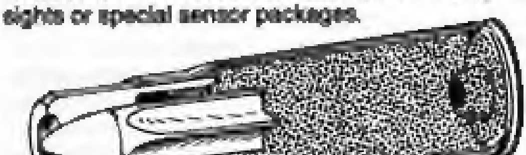
Instead of a letters column this time, I'm going through and answer a lot of the questions they raised. There were a lot of letters on Nr 3, plenty of Oohs and Aahs, several in depth analyses and speculative projections on the scenario, and again, lots of questions.

Among them have been "where's the blasters?" Well, various energy weapons technologies do exist, however, there are inherent limitations to their effectiveness. Unlike the old pulp chop-em-in-half death beams, most beam weapons just punch nasty holes in what they first touch, fine for puncturing ICBM fuel tanks or cracking re-entry shields, a la "Star Wars" strategic defense systems. But a ship like, say, the DH270, is not a small and fragile missile. Those surfaces most likely to be exposed to attack are liberally coated with ablative and reflective materials that either absorb then release energy by vaporization or simply bounce the beam off. Then armor, up to 10mm of exotic monomolecularly laminated materials of truly remarkable strength many times that of steel plate. Then, lots of liquid hydrogen and other fluids tanks, all heavily subcompartmentalized, and of simular superhard stuff. So, if a beam hits the ship end on, it has to defeat the external coatings, punch through the outer hull armor, some insulation, then about 40 meters of liquid hydrogen with about 40 bulkheads within, then finally several more layers of armor and misc. stuff before breaching the pressure hull.

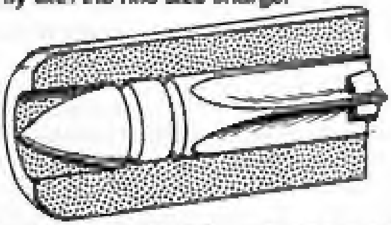
It quickly becomes clear that only the biggest beam generators at their best range and most advantageous angles could hope to do serious damage. But, as the ship to ship action in Nr 3 demonstrated, when craft engage at high relative speeds, the opportunity for beam exchanges lasts for only a few seconds, and the chance of lethal hits almost non-existent. On the other hand, against lesser and usually unhardened craft at lower speeds, the target can be riddled over many minutes of beam attack. The EDF counter assault on Derzon could have been in jeopardy had they not ruthlessly attacked all the ILR beam units that dared fire and reveal themselves.

On the individual level, reflective and insulative materials combined with "bullet proof" kinetic armor can defeat the efforts of your average hand held "ray gun." This is largely due to the limits of size versus power versus side effects on the user. An additional problem of such weapons in the field is that they can emit loud electromagnetic noise that can be detected and draw counter fire. Keep in mind this is within the scenario. No anti-matter projectors, no Q-rays, no phasers, just your standard laser, electron, and proton beams. Neutron technology is in the works and X-ray lasers are known but not being pursued this time.

As for kinetic weapons, unlike beam weapons, many of which can be easily protected against, projectile weapons can be made to penetrate armor heavier than someone would be able to carry. Up until the ILR split, everyone had basically the same technologies and there was a fair amount of standardization. Since then, the ILR and EDF have pursued mutually incompatible systems. The EDF use conventional cartridge ammunition, 8mm, in pistol, carbine, and rifle sizes. Many of the loads used in the field are actually 4mm saboted sub-caliber darts for armor piercing ability. Most of the weapons are fairly conventional gas or recoil operated and are not too remarkable except for exotic materials and clever design details. Laser point and shoot is standard and most can be fitted with various projection sights or special sensor packages.



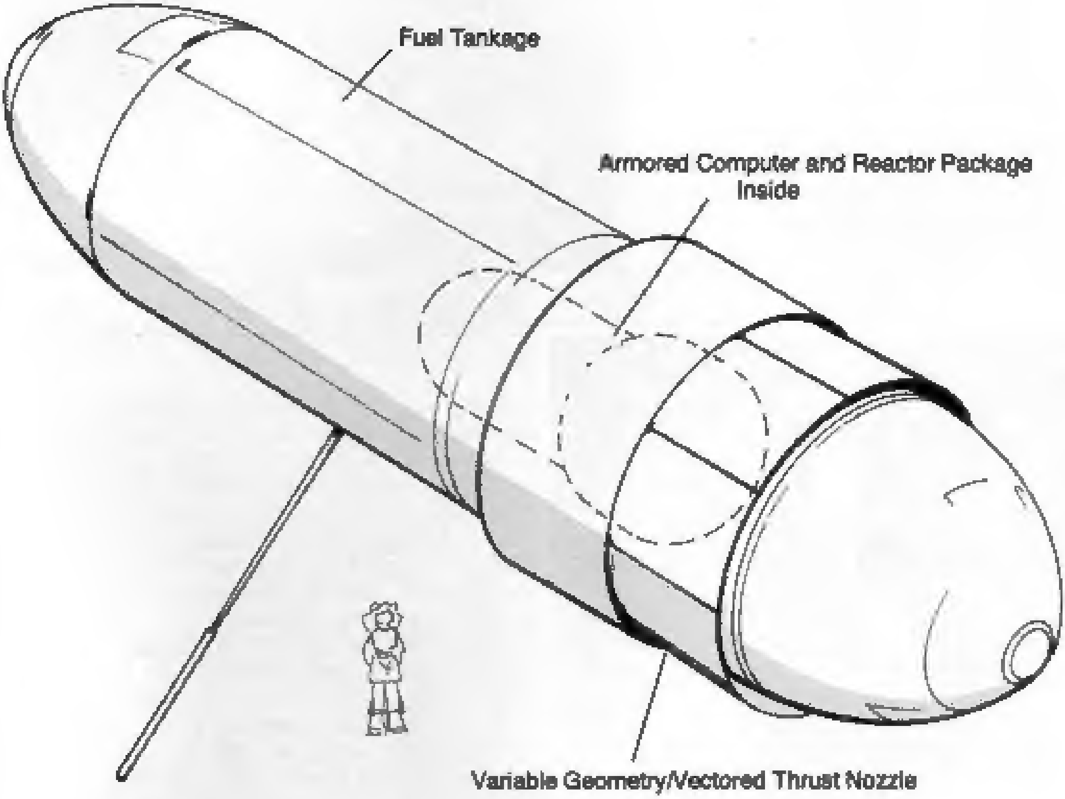
The ILR has simular features on their weapons except that they have choosen a 6mm caseless ammunition system. The projectile is a dart which is armor piercing only with the rifle size charge.

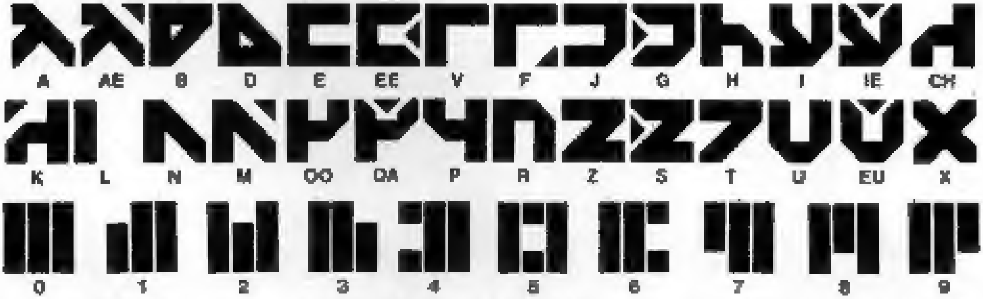


The normal mode of attack for most space engagements would be like the action in Nr 3. Tro to get into a position that would have the highest relative velocities, then hope to hit the opposition with something hard and heavy. The weapon of choice is the ACV (Autonomous Combat Vehicle). A smart missile that can not only track and attack a target, but plot its own tactics and strategy as an independent weapon or in concert with other ACVs and the mother ship. They have a comprehensive array of sensors and communications systems so can serve as intelligence ferrets or command relays as well. The basic ACV is based on message torpedoes used for high speed interstellar communication. The torpedo can make runs out to jump as fast as twenty gees, unhampered by passenger comfort or fuel/time/speed economies. The ACV has a similar power plant, but usually no jump drive and can sprint to fifty gees.

ACVs come in a wide variety of sizes depending on fuel volume or number of add-on features, such as submunitions, beam generators, or automatic cannons. Their outer hulls are usually unarmored but the computer core and reactor are buried in exotic armor and ablative layers often over a meter thick. That, or multi-ton iron slugs, make up most of the impact mass for ramming attacks or bombardments, which can be of near-nuclear yields when at high speeds. Such tough nuts are almost immune to beam defense, so most ships have high speed point defense missiles and automatic cannons, which can break up or deflect an oncoming weapon.

The reaction times for these kinds of actions can orders of magnitude too fast for their organic masters and are handled by a gang of disconcertingly intelligent computers. Any one of these units is more than enough to deal with ship functions and combat management, but for safety and redundancy's sake, there are usually three or more additional units on line to kibitz and watchdog the operations. They are true artificial intelligences and could run things on their own, but prefer to have a live crew, if for no other reason than as an additional back-up system.


Fuel Tankage
Armored Computer and Reactor Package Inside
Variable Geometry/Vectored Thrust Nozzle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Yes! The "alien" alphabet decoded! It isn't a foreign language, just English in simplified phonetic symbols. Everything is spelled as pronounced, no silent letters, and no vowel combination rules. So, a word like unusual is and question is . Get the idea? The grammar isn't any different except, since there are no capital letters, proper names and/or the subject of a sentence can have a bar over the first letter. I haven't worked out the punctuation as yet. Now that you know, don't expect me to be able to read your 2300 page letter, all in standard.

Okay, so I reprinted the alphabet from Nr 2 verbatim. People asked. So what if there's no "w" or "y." Valla Valla Vashington doesn't sound too bad. Besides, all the silly thing is for is just cosmetic background. Gee, guys! Give me a break!

THOUGHTS & IMAGES

PENGUINS IN SPACE!